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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/546,001	08/18/2005	Koji Hamaoka	MAT-8735US	8619
52473	7590	02/24/2006	EXAMINER	
RATNERPRESTIA			LEYKIN, RITA	
P.O. BOX 980			ART UNIT	
VALLEY FORGE, PA 19482			PAPER NUMBER	
			2837	

DATE MAILED: 02/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/546,001	Applicant(s) HAMAOKA ET AL.	
	Examiner Rita Leykin	Art Unit 2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>8/18/05</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamaoka Koji et al. JP 09-088837.

At the time of examination only abstract of the prior document has been available to examiner. The provided rejection is based on disclosed abstract and Fig. 1.

However, the translation of the above prior document can be provided upon request.

With respect to claims 1, 7, 8 and 28 Hamaoka Koji et al. teach a control device for brushless motor operated compressor. Wherein the device is provided with a load condition judging circuit 20 to judge the load condition of the brushless motor and switching circuit 18 to switch the waveform to be outputted from an inverter 13 to either a commutation circuit 16 or a synchronous drive circuit 17.

In addition Hamaoka Koji et al. show in Fig. 1 presented on the front page:

- The motor to operate the compressor;
- An inverter 13 for supplying electric current to the motor;
- A position detection unit, (one of the symbols shown in the circle 1);
- A current sensing device output;
- A pulse width modulation unit 19;

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- A load condition judging circuit 20 to judge the load condition of the brushless motor;
- A switching circuit 18 for switching the waveform to be outputted from the inverter 13 to either a commutation circuit 16 or a synchronous drive circuit 17;

With respect to claim 2 and similar, Hamaoka Koji et al. show a square waveform.

With respect to claims 3-5, Fig. 5, shows the operational timing required for waveform switching.

With respect to claim 6, brushless DC motors with permanent magnet rotors having saliency are well known in the art.

With respect to claim 13, a voltage detection unit for detecting voltage applied to the inverter also well known in the art.

The provided abstract does not teach specifically claimed second waveform generating unit for outputting drive signal for driving the brushless motor, while keeping the PWM duty cycle constant. However, the prior document teaches that brushless motor can, by choice, be operated as synchronous motor. The operation of motor in synchronous mode obviously will call for additional means to generate a second waveform, wherein switching frequency will provide for rotational synchronism.

It is the examiner position that prior document appears relevant to rely upon for rejection of other claimed limitations as well. Translation of prior document by Hamaoka Koji et al. will fully clarify the rejection of above claims.

Hence, it has been obvious to one of ordinary skills in the art, at the time invention was made to provide second waveform generating unit for the switching circuit 18 to

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switch the waveform to be outputted from an inverter 13 to either a commutation circuit 16 or a synchronous drive circuit 17 as in Hamaoka Koji et al. to control motor operated compressor as brushless motor or synchronous motor to expand the operational range of a motor characteristics.

The reason is achieve higher efficiency of the motor.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rita Leykin whose telephone number is (571)272-2066. The examiner can normally be reached on Monday-Friday 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paula Bradley can be reached on (571)272-2800 ext. 33. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Rita Leykin
Primary Examiner
Art Unit 2837

R.L.

